REMARKS

Status of the Claims

Steps (IV) and (V) from independent claim 13 have been introduced into claim 1. Claim 13 is thus canceled. Claims 1-12 are under examination.

Present invention

The invention as defined in previous claim 13 and currently in claim 1 requires

- cold forming to a near net shape,
- trimming,
- heating, and
- final shaping and and rapidly cooling in a hot-forming tool to set the material structure.

The part is thus largely but not finally formed in a first cold (pre) forming step while the metal is in the soft state. Since the part is first formed in a cold forming process, the part can be subject to greater deformation than possible with press-hardening (heating followed by deformation in a hot-forming tool), so that more complex geometries can be formed.

Trimming of the part while soft makes it possible to avoid costly and slow cutting techniques such as laser or water cutting.

Finally, the part is heated and final shaped in a second shaping step in a hot-forming tool. Since the part has already been formed to near net shape in the earlier steps, less forming must be done in the final forming step, and thus wear on the hot forming tool is reduced. In the hot-forming tool the trimmed part is finish-shaped and rapidly cooled (e.g., the hot forming tool is cooled with brine), as a result of which a fine-grained martensitic or bainitic material structure is set, and high dimensional accuracy is achieved. Due to the fact that the near net shape part is trimmed preceding the hot-forming process and on account of the adaptation of shape of the outer margin in the hot-forming tool, the part already has the desired outer contour after completion of the hot-forming process, so that no time-consuming trimming of the part margin is necessary after the hot forming.

Claim Rejections - 35 USC § 102

Claim 1, 6, 10-11 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Tjoelker et al (US 6,918,224 B2).

US '224 is applied on claims 1, 6, 10, and 11 for the same reason as stated in the office action of 2/21/2008.

Regarding claim 13 (now claim 1), which includes the steps of (IV) heating the trimmed part blank to a temperature above the structural transformation temperature in the austenite state; and (V) **final shaping** the heated product of step (IV) and rapidly cooling the trimmed part blank in a hot-**forming** tool to set the material structure, the Examiner takes the position that Tjoelker et al teache induction heating then quenching to obtain desired hardening effect (Col.4, line 54 to Col.5, line 20 of Tjoelker et al), which reads on the heating and rapid cooling limitations in the instant claim. Because it is a common knowledge to heat a quenchable steel to the austenite state, then quenching it to obtain a hardening effect, the sufficiently heating taught by Tjoelker et al reads on the limitation of heating to a temperature above the structural transformation temperature in the austenite state as recited in the instant claim. Tjoelker et al further teach during cooling the coolant is rapidly and suddenly applied through nozzles and directed onto the impact beam to quench the same while it is still fixtured or retained in fixture (Col.5, lines 11 to 20 of Tjoelker et al), which reads on the limitation of rapidly cooling the blank in a hot-forming tool as recited in the instant claim.

Applicants respectfully point out that Tjoelker et al merely teach cold forming (single step) followed by heat treating. Further, at col. 1, line 35, Tjoelker et al in fact teaches disadvantages associated with hot forming, and teaches overcoming these disadvantages by avoiding hot forming.

Tjoelker et al nowhere teach **two** forming steps, wherein the **first** forming step forms to a **near net shape**, followed by a **second** forming step in which the part is formed to it's **final shape**.

To anticipate, a reference must teach every limitation of the claims.

More specifically, at best, Tjoelker et al teach a heat treatment step in which the part is

- fixtured in a clamping device,
- subjected to induction heating (while being fixtured in the clamping device)(col. 4, line 27 – col. 5, line 20).

The clamping device is used to suppress undesired warping of the part. In Tjoelker et al the part is already shaped to it's final shape before the heat treatment step, so that during heat treatment the part does not experience any (further) change of shape.

In contrast, the hot forming steps (IV) and (V) comprise heating the part (e.g., in a furnace), (ii) inserting the heated part into a hot forming tool, and (iii) closing the hot forming tool, thus rapidly cooling the part to set the material structure. See paragraphs [00033]-[00034] of the specification as filed. Thus, in the present invention, the part gets both it's final material structure and it **final shape** during the hot forming steps (IV-(V).

Accordingly, since Tjoelker et al do not teach the two step forming process of the present invention, Tjoelker et al do not anticipate the present invention.

Withdrawal of the rejection is respectfully requested.

Claim Rejections - 35 USC § 103

Claims 2-4, 12 are rejected under 35 U.S.C. 103(a) as being obvious over Tjoelker et al as applied on claim 1, and further in view of term definition for "stamping" on Wikipedia (www.wikipedia.org).

Tjoelker et al is applied on claims 2-4 and 12 for the same reason as stated in the office action of 2/21/2008.

Claims 5, 7-9, are rejected under 35 U.S.C. 103(a) as being unpatentable over US'224 as applied on claim 1, and further in view of Bronsema et al (US 5,669,992, thereafter US'992)

US'224 is applied on claims 5 and 7-9 for the same reason as stated in the office action of 2/21/2008.

Applicants respectfully traverse.

According to the present invention:

- the sheet blank is formed to near net shape in a cold forming process,
- the marginal regions are trimmed off the still soft near net shape part,
- the trimmed part is heated (to a temperature above the structural transformation temperature in the austenitic state); and
- the heated part is subject to a final shaping and rapid cooling in a hot-forming tool to set the material structure.

Since the part is shaped in a first cold forming process while the metal is still soft, more complex geometries can be formed in comparison to hot-forming. Further, multiple passes can be made in cold forming, thus greater deformation can take place than with conventional hot forming (specification paragraph [00015]). Since the trimmed part already has dimensions near net shape, only a slight adaptation of shape is necessary during the hot forming, and thus wear on the hot-forming tool is reduced, saving costs (specification paragraph [00013]). In the hot-forming tool the trimmed part is finish-shaped and rapidly cooled (e.g., the hot forming tool is cooled with brine), as a result of which a fine-grained martensitic or bainitic material structure is set, and high dimensional accuracy is achieved. Due to the fact that the near net shape part is trimmed preceding the hot-forming process and on account of the adaptation of shape of the outer margin in the hot-forming tool, the part already has the desired outer contour after completion of the hot-forming process, so that no time-consuming trimming of the part margin is necessary after the hot forming.

The further limitations of claims 2-4, 5, 7-9 and 12 build on the advantages resulting from the base "two forming step" process claimed in claim 1. Since the secondary references do not teach or suggest the limitations missing from claim 1 as discussed above, the secondary references can not render obvious the subject matter of the dependent claims.

Response to Arguments

The Examiner indicates that Applicant's arguments filed 7/23/2008 have been fully considered but they are not persuasive.

The Examiner acknowledges that Applicants argue that Tjoelker et al do not teach press hardening in a hot forming tool, and thus can not teach or suggest the advantages associated with the present inventive combination (a) cold forming to a near net shape followed by (b) press-hardening in a hot forming tool. Tjoelker et al merely teach cold forming followed by heat treating, which does not allow for high dimensional accuracy of the heat-treated part. And furthermore Tjoelker et al is not possible to press-harden the whole workpiece, but only the central portion of the beam.

The Examiner disagrees with the Applicants arguments. Tjoelker et al teach, prior to heat treatment, the cold formed beam workpiece is fixtured in a suitable clamping device and the clamping elements allow the respective flange to move only longitudinally, but not vertically or

torsionally, to accommodate beam expansion and contraction due to temperature increases and decreases during the induction heat treating process, but prevent significant vertical or torsional distortion (Col.4, lines 27 to 52 of US'224). The clamping device of US'224 is one kind of hot-forming tools because it limits the motion of the working pieces; and the limitations of clamping devices will lead to the press hardening on the working pieces during the temperature increases and decreases as recited in the instant claims 1 and 13.

In response, Applicants point out that claim 1 now contains limitations of claim 13.

Tjoelker et al fixturing in a clamping device is not a shaping step. Tjoelker et al at best describe fixturing to prevent warping.

In contrast, the invention as defined in previous claim 13 and currently in claim 1 requires

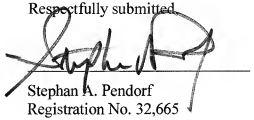
- cold forming to a near net shape,
- trimming,
- heating, and
- final shaping and and rapidly cooling in a hot-forming tool to set the material structure.

This is nowhere suggested in the primary or secondary art.

Accordingly, withdrawal of the rejection and early issuance of the Notice of Allowance are respectfully requested. Should further issues remain prior to allowance, the Examiner is respectfully requested to contact the undersigned at the indicated telephone number.

The Commissioner is hereby authorized to charge any fees which may be required at any time during the prosecution of this application without specific authorization, or credit any overpayment, to Deposit Account Number 16-0877.

Respectfully submitted,



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